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**A new subspecies of *Plebeius (Plebejides) sephirus* (FRIVALDSZKY, 1835)  
from the Black Sea Coast of Russia**

(Lepidoptera, Lycaenidae)

by

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**Abstract:** A new lycaenid subspecies *Plebeius (Plebejides) sephirus kabanensis* subsp. nov. from the Black Sea Coast of Russia (Krasnodar Province) is described. A comparative morphological study of this form and related taxa from the West Caucasus, the Crimea, and Turkey is conducted.

**Резюме:** Описывается *Plebeius (Plebejides) sephirus kabanensis* subsp. nov. с Черноморского побережья С.-З. Кавказа (Краснодарский край). Дается сравнительный анализ морфологических признаков нового подвида и близких таксонов с Западного Кавказа, Крыма и Турции.

**Introduction**

During the study of the butterfly fauna of arid forests of the Abrau peninsula (North-West Caucasus, Krasnodar province), a series of lycaenids belonging to the *Plebeius pylaon* (FISCHER VON WALDHEIM, 1832)-group was collected in several localities east of Anapa as well as in Betta env. (Gelendzhik distr.) (fig. 1). Comparison of these specimens with other taxa known to inhabit the Crimea – *P. sephirus sephirus* (FRIVALDSZKY, 1835) (NEKRUTENKO, 1985), Northern Caucasus – *P. zephyrinus albertii* (NEKRUTENKO, 1975), Abkhazia – *P. sephirus abchasicus* (NEKRUTENKO, 1975), and Turkey (author's material) revealed constant morphological differences, which in combination with the geographical isolation of the populations in question has made us to describe a new subspecies.

The type specimens are deposited in the following collections:

ZISP Zoological Institute of the Russian Academy of Sciences, St.-Peterburg;

KSAU Kuban State Agrarian University (Entomological Museum), Krasnodar;

CS collection of the author;

CL collection of Dr. V. A. LUKHTANOV, St.-Petersburg.

*Plebeius (Plebejides) sephirus kabanensis* subsp. nov.

(colour plate X; figs. 1, 2, 4, 5, 7, 8, 10, 11)

**Material**

Holotype ♂: Russia, Krasnodar region, Black Sea Coast, 10 km east of Anapa, Sukko env., Navagir Mt. Range, 250 m, 21.V.1997, V. SHCHUROV leg. (ZISP).

Paratypes: 29 ♂♂, 14 ♀♀, same locality, 21.V.–15.VI.1997 (ZISP, KSAU, CS, CL); 1 ♂, 1 ♀, 16.V. 1996, Krasnodar region, Black Sea Coast, Gelendzhik distr., Betta env., V. SHCHUROV leg. (CS).

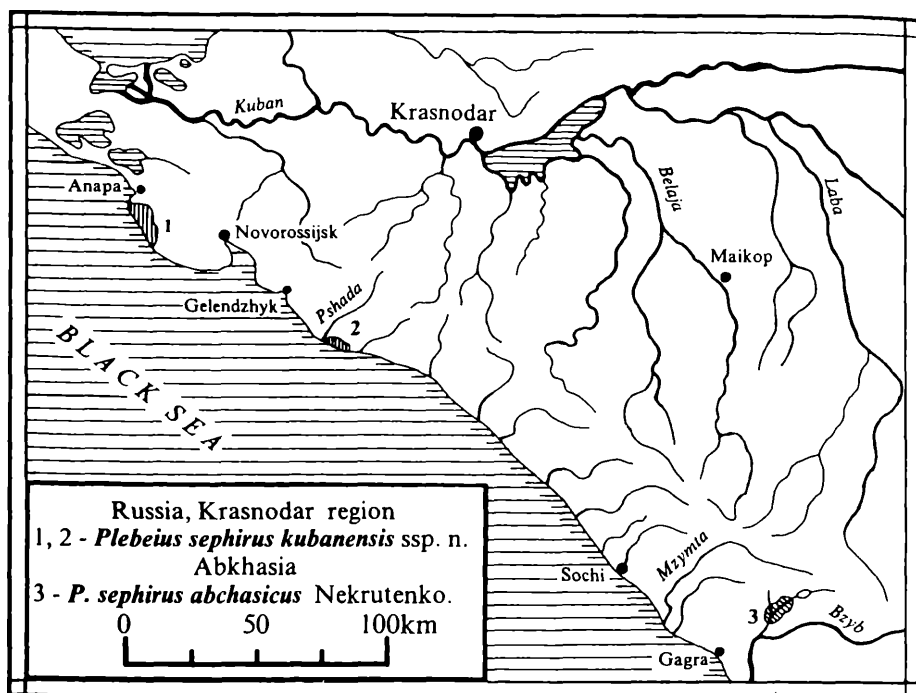
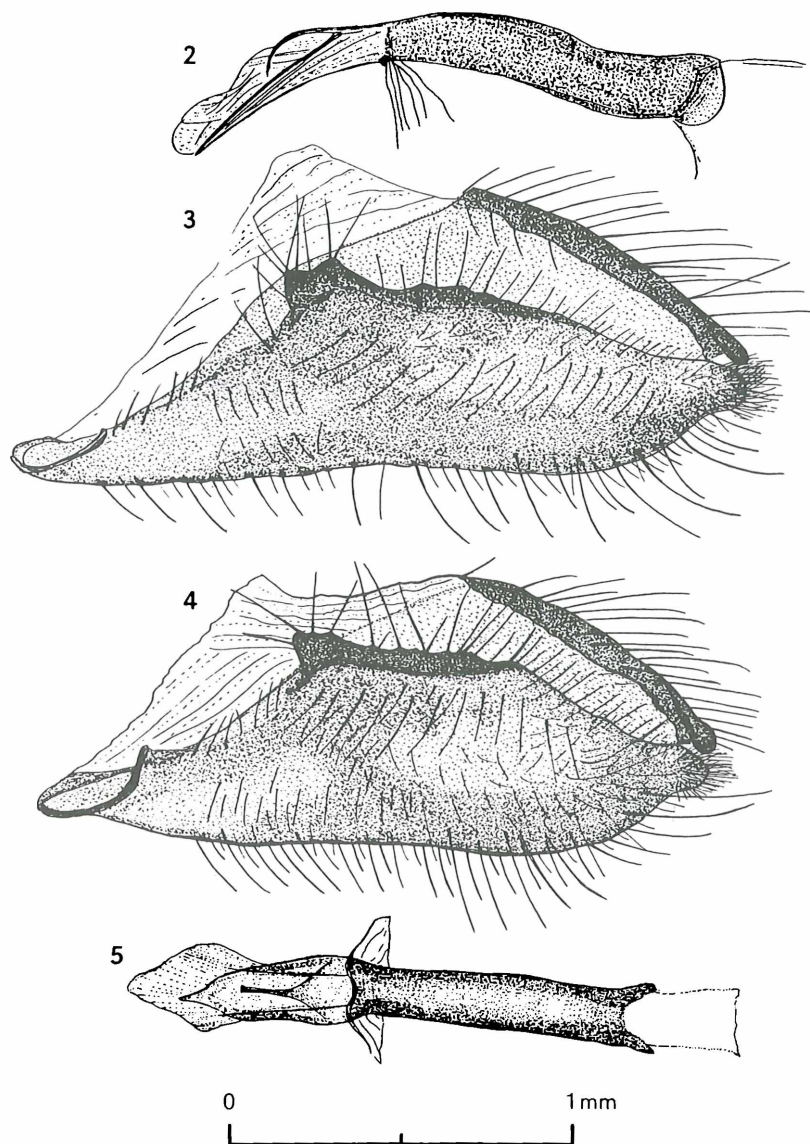


Fig. 1: Distribution of *Plebeius sephirus* (FRIVALDSZKY, 1835) - ssp. in the North-West Caucasus.

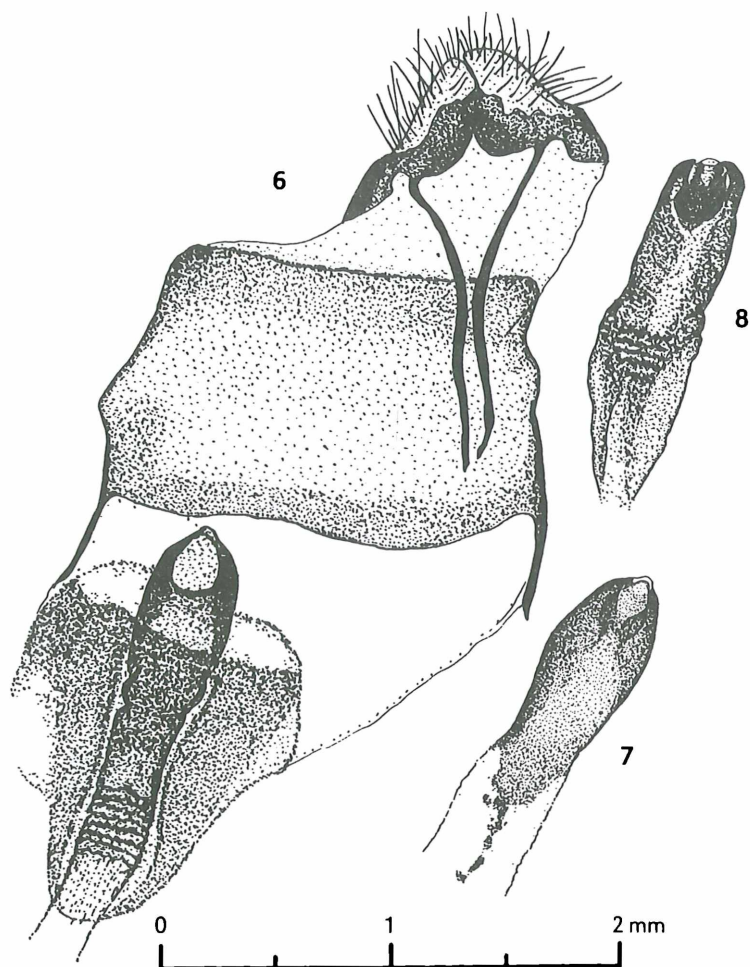
### Description

Holotype ♂. Forewing length 16.5 mm (base to tip). Upperside: light blue, with slightly violet reflection. Costal edge of forewing light-blue at basis. In fresh specimens a light-blue dusting covers the basis of all veins of the forewing. The black marginal strip is precise, its width up to 0.5 mm, apices of veins darkened at  $\frac{1}{3}$  part. Hindwing with two blackish spots of anteriomarginal row, separated from marginal obscuration by light coloured intervals. Fringe wide (up to 1 mm), from above two-coloured: from within grey, outside white. Underside: groundcolour light greyish. Pattern contrasting and bright. Basal area of hindwing covered by light blue scales. Postdiscal spots large, bordered with wide white rings. Wedge-shaped white submarginal dabs of hindwing precise, separated by grey veins. Bright orange submarginal lunules wide, bordered with narrow black sickle-shaped elements basally, separated by greyish veins. Black anteriomarginal spots of hindwings centred by greyish-blue scales and separated from the edge by white intervals. Pattern of the submarginal row in forewings indistinct, less bright. Black spot on discal vein narrow, bordered with white. Fringe from the bottom completely white, darkened opposite veins.

Females. Forewing length 14.8–16.3 mm (base to tip), 15.6 mm average for 15 specimens. Wings wide with rounded and convex lateral edge. Upperside: grey-brownish, costal edge of

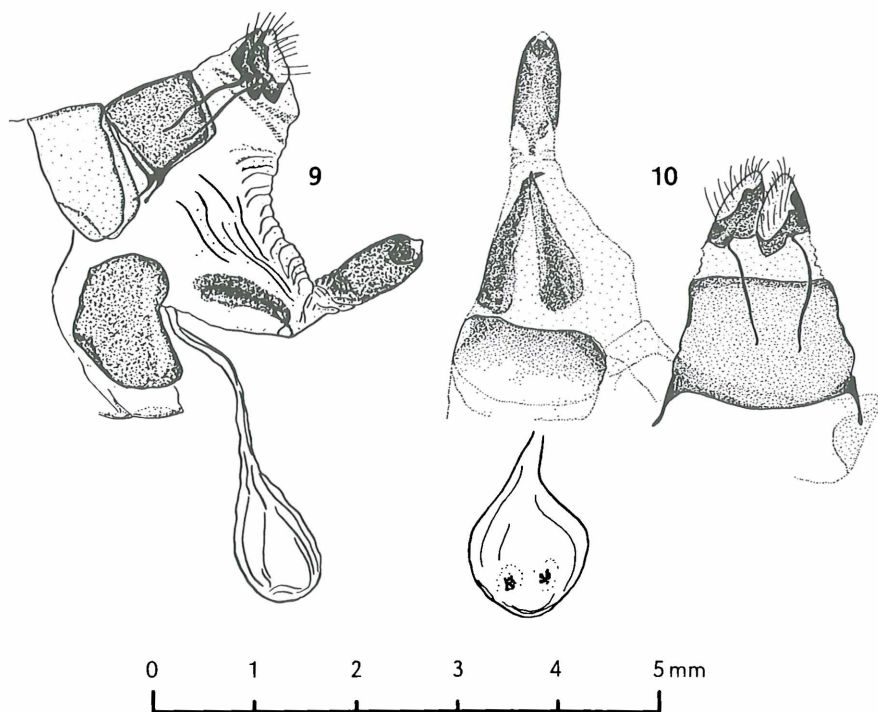


Figs. 2-5: *Plebeius sephirus kubanesis* subsp. nov., male genitalia. 2, 5 - aedeagus, lateral and dorsale view; 3, 4 - main types of valva, inner side.



Figs. 6-8: *Plebeius* KLUK, female genitalia. 6, 7 - *P. sephirus kubanensis* subsp. nov., general view, ductus and bursa removed; 8 - *P. nichollae akbesianus* (OBERTHÜR, 1904), (Turkey, Niğde, Taurus, Aladaglar, Demirkazik Dag), ostium and antrum.

forewings lightened, basal area more greyish. Orange submarginal spots of forewings precise. A row of large blackish anteriomarginal spots, separated from the marginal strip by blue scales, is allocated on the hindwing. Fringe from above two-coloured (from within black, outside grey), at top of forewing purely white. One-third of the females of the type series possesses a strongly developed blue dusting of the upperside, almost reaching the basal part of the wing



Figs. 9, 10: *Plebeius* KLUK, female genitalia, general view. 9 – *P. nichollae akbesianus* (OBERTHÜR, 1904), (Turkey, Niğde, Taurus, Aladaglar, Demirkazik Dag); 10 – *P. sephirus kubanensis* subsp. nov.

along the veins. From above a dark stain on the discal vein of the forewings is precisely allocated. Underside: background differs slightly from male, sometimes somewhat darker. Fringe from below uniformly light grey.

Male genitalia (figs. 2–5, 11–13). Sclerotized projection on the inner side of the valva well advanced, its proximal end terminates with one or two round teeth. Intensity of sclerotization as well as teeth development rather variable, however never such intensive as in *albertii* NEKRUTENKO, 1975. Two types of sclerotized projections prevail (figs. 3, 4), others are rare. Aedeagus thin, regularly arcuate. Judging from the male genitalia structure, the new subspecies seems to occupy a position somewhat intermediate between both West Caucasian taxa *abchasicus* and *albertii*, nearly reminding the image for *abchasicus* given in the review of this group (BALINT et al., 1992).

Female genitalia (figs. 6, 7, 10). Shape and size of antrum and position of ostium are characteristic attributes of this form. The ostium occupies the ventral position of the antrum apex. Antrum strongly sclerotized, at ductus base membranous, with crimped structure, which can be considerably stretched. Ductus and bursa copulatrix membranous, hardly distinguishable. Some females possess signa inside the bursa, represented as 2 fields of granular sclerotiza-

tion. Unfortunately, very few female genitalia of *Plebejides* SAUTER, 1968 have been illustrated until now, however, comparison of this new subspecies with *P. nichollae akbesianus* (OBERTHÜR, 1904) (colour plate X, figs. 9, 12–14, 16, 17) and *P. sephirus sephirus* indicates specific differences in the shape of the antrum apex and the position of the ostium (figs. 8–9).

#### Variation

Two male specimens differ by a light blue (but not violet) shade of the wing upperside. The number of black anteriomarginal spots of hindwings in male from above varies from 1 up to 6, some of them possess also 1–2 orange spots in the submarginal row on the hindwings. The number of orange lunules on the forewings in females varies from 1 up to 5. One-third of the females possess a strongly advanced blue dusting on the upperside, in the bulk of the specimens it occupies only the anteriomarginal area of the hindwings. Turquoise spots on the underside of hindwings present in 1 up to 5 of the anteriomarginal spots, seldom missing. Forewing length of males ranges from 13.9 mm to 17.2 mm (average for 31 specimens 15.5 mm).

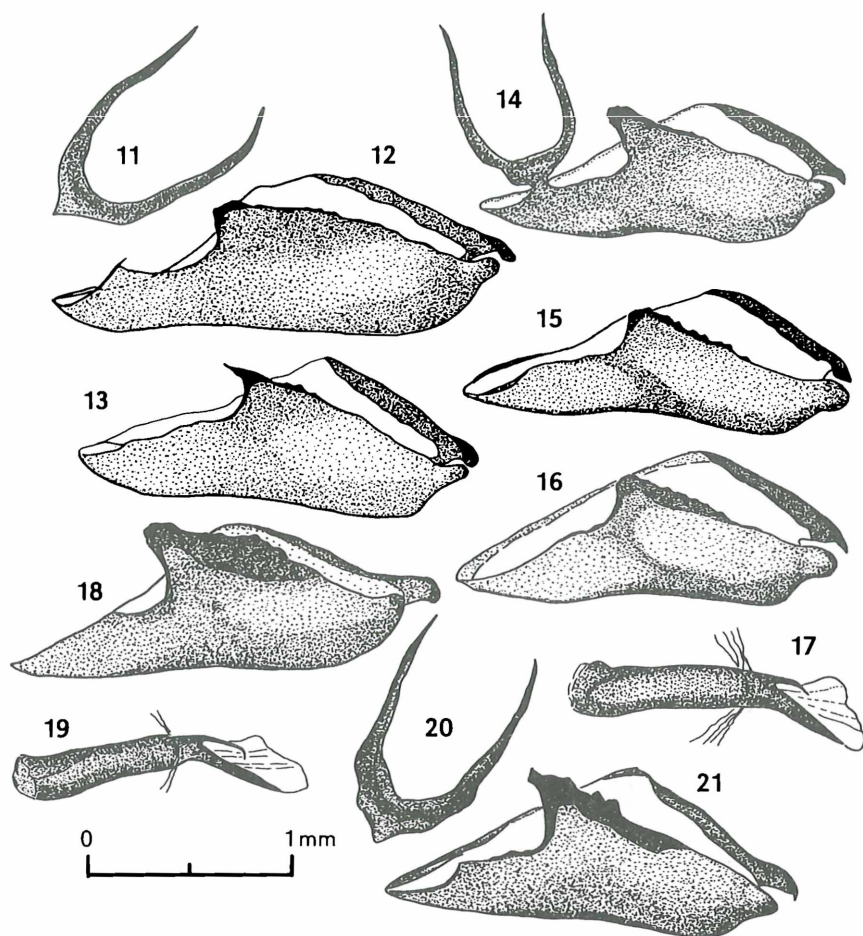
#### Differential diagnosis

From the nominotypical subspecies, distributed in the Crimea, the new subspecies differs by its larger size both in males and females (see tab. 1). The orange submarginal lunules on the underside of the wings are separated by grey veins, turquoise scales in the anteriomarginal spots are present in the bulk of the specimens studied, the basal blue-greenish dusting of the hindwings is pronounced. On the upperside the female colouration of the new subspecies is lighter, the discal spot distinct, and orange lunules are developed on the forewings. Female hindwings frequently with a dark blue dusting. Female genitalia with integral, pointed antrum apex. The males of the new subspecies differ from *P. sephirus abchasicus* by their larger size, the underside pattern being bright and contrasting, the underside background darker. The underside pattern of the new subspecies reminds of that in *P. sephirus semiturcmenicus* BALINT, 1991, to which we readily attribute specimens from the Pontian Mountains in Turkey (Artvin, Kaçkar Dag, Yaylalar env., 1300–2000 m, 4.–7.VII.1997, V. SHCHUROV leg.) (colour plate X, figs 3, 6, 15, 18; tab. 1). In general the underside background of these specimens is lighter than in *kubanensis* subsp. nov., in some males and females it is almost white. The projection on the inner side of valva in *P. sephirus semiturcmenicus* is distinctly stronger (figs. 18–21).

From smaller *P. nichollae akbesianus* (OBERTHÜR, 1904) of the Taurus Mountains (Turkey, Niğde, Aladaglar, Demirkazik Dag, 1400 m 27.–30.VI.1997, V. SHCHUROV), which Dr. V. A. LUKHTANOV is inclined to attribute to the species *sephirus* (FRIVALDSZKY, 1835) (pers. comm.), the new subspecies also differs by its larger size (tab. 1), brighter upperside colouration, large underside pattern, and the shape of the sclerotized projection on the valva (figs. 14–17). The new subspecies is habitually close to *albertii* NEKRUTENKO, 1975, from which it differs by its light grey underside background and the narrower white rings of the spots in the postdiscal row, as well as in the shape of the sclerotized projection on the valva and also in some ecological peculiarities.

It is necessary to note that the attribution of *albertii* NEKRUTENKO, 1975 to the species *zephyrinus* (CHRISTOPH, 1884) is rather disputable, based upon new data on the distribution and morphological comparison with the other taxa of *Plebejides* SAUTER, 1968 from North-West Caucasus; it seems to be more probably regarded as a subspecies of *sephirus* FRIVALDSZKY, 1835. This opinion is also shared by Dr. V. A. LUKHTANOV (pers. comm.).





Figs. 11-21: *Plebeius* KLUK, male genitalia. 11-13 – *P. sephirus kubanensis* subsp. nov., juxta, unusual types of valva; 14-17 – *P. nichollae akbesianus* (OBERTHÜR, 1904), (Turkey, Niğde, Taurus, Aladaglar, Demirkazik Dag) juxta, valva, aedeagus: lateral view; 18-21 – *P. sephirus semiturcicus* BALINT, 1991, (Turkey, Artvin, Kaçkar Dag) juxta, valva, aedeagus: lateral view.

#### Bionomy

All the findings of the subspecies in question are recorded from the seaside slopes of the Nava-gir Mt. Range (the most distant less than 5 km from the coast of the sea). The period of flight activity ranges from the beginning of May up to the mid of June. The food plant of the caterpillars is *Astragalus utriger* (PALLAS). Typical biotopes are pebbly-stony sites of slopes of southern

and south-east exposition at altitudes from 50–325 m above sea level, covered with arid sparse forests composed of *Quercus pubescens* (WILLD.), *Pistacia mutica* (FISCH. et MEY.), *Cotinus coggygia* (SCOP.), *Juniperus oxycedrus* (L.), and *J. foetidissima* (WILLD.). The males fly low above the ground, frequently visiting flowers of *Jasminum fruticans* (L.). The females fly seldom, they usually sit on the leaves of *A. utriger* and the ground. Copulating couples were observed on the ground. The young caterpillar seems to hibernate, as already in July the overground part of *Astragalus* dies off. Sites with mass growing of the food plant, occupied by high number of this lycaenid (up to 70 imagos/hectar) appeared to be quite local. The large portion of the subspecies' populations is situated in a zone under intensive recreational pressure, caused by the resorts Anapa and Gelendzhik, thus being under threat of destruction.

Table 1: Forewing length (base to tip) of *Plebeius* KLUK.-species and subspecies.

Taxa	males				females			
	min	max	average	number of ex. studied	min	max	average	number of ex. studied
<i>P. sephirus sephirus</i> *	14	16						
<i>P. sephirus abchasicus</i> **	14.5	16.7	15.4	39				
<i>P. sephirus semiturcmenicus</i>	14.8	18.3	16.2	21				
<i>P. sephirus kubanensis</i> subsp. nov.	13.9	17.2	15.5	31	14.8	16.3	15.6	15
<i>P. zephyrinus albertii</i> **	14.8	17.5	16.2	45	14.0	14.5	14.3	4
<i>P. nichollae akbesianus</i>	12.1	15.7	14.2	10	13.9	15.8	14.8	4

Remarks: \* – according to NEKRUTENKO (1985); \*\* – according to NEKRUTENKO (1975).

#### Etymology

The new subspecies is named after Kuban – a historical area in the South of Russia, where the type series was collected.

#### Acknowledgements

The author is greatly indebted to Dr. A. S. ZAMOTAJLOV (Kuban State Agrarian University, Krasnodar) for valuable advises and invaluable help, rendered in collecting comparative material during a joint expedition to Turkey, Dr. A. I. MIROSHNIKOV (Krasnodar Forestry Board, Krasnodar) for kind assistance in realisation of the present research, and Dr. V. A. LUKHTANOV (St.-Petersburg State University, St.-Petersburg) for critical review of this manuscript.

#### References

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NEKRUTENKO, Y. (1975): Two new subspecies of *Plebejus (Plebejides) pylaon* from the Southern and Northern sides of the West Caucasus. – J. Lepid. Soc. **29**: 151–155.  
NEKRUTENKO, Y. (1985): Rhopalocera (Lepidoptera) of Crimea: Key-book. Kiev (Naukova dumka): 130–131 (in russian).

Explanation of colour plate X (p. 365):

Fig. 1: *Plebeius (Plebejides) sephirus kubanensis* subspec. nov., holotype ♂, Russia, Krasnodar province, 10 km E of Anapa, Sukko env., Navagir Mt. Range, 250 m, 21.V.1997, V. SHCHUROV leg. Upperside.

Fig. 2: *Plebeius (Plebejides) sephirus kubanensis* subspec. nov., ♂ paratype, same data as holotype. The most intensive submarginal pattern. Upperside.

Fig. 3: *Plebeius sephirus semiturcmenisus* BALINT, 1991, ♂, Turkey, Artvin, Kaçkar Dag, Yaylalar env., 1300–2000 m, 4.–7.VII.1997, V. SHCHUROV leg. Upperside.

Fig. 4: same as in fig. 1. Underside.

Fig. 5: same as in fig. 2. Underside.

Fig. 6: same as in fig. 3. Underside.

Fig. 7: *Plebeius (Plebejides) sephirus kubanensis* subspec. nov., ♀ paratype, same data as holotype. Upperside.

Fig. 8: *Plebeius (Plebejides) sephirus kubanensis* subspec. nov., ♀ paratype, same data as holotype. The most intensive blue dusting. Upperside.

Fig. 9: *Plebeius (Plebejides) nichollae akbesianus* (OBERTHÜR, 1904), ♀, Turkey, Niğde, Taurus, Aladaglar, Demirkazik Dag, 1400 m, 27.–30.VI.1997, V. SHCHUROV leg., Upperside.

Fig. 10: same as in fig. 7. Underside.

Fig. 11: same as in fig. 8. Underside.

Fig. 12: same as in fig. 9. Underside.

Fig. 13: *Plebeius (Plebejides) nichollae akbesianus* (OBERTHÜR, 1904), ♂, Turkey, Niğde, Taurus, Aladaglar, Demirkazik Dag, 1400 m, 27.–30.VI.1997, V. SHCHUROV leg., Upperside.

Fig. 14: *Plebeius (Plebejides) nichollae akbesianus* (OBERTHÜR, 1904), ♂, Turkey, Niğde, Taurus, Aladaglar, Demirkazik Dag, 1400 m, 27.–30.VI.1997, V. SHCHUROV leg., Upperside.

Fig. 15: *Plebeius sephirus semiturcmenisus* BALINT, 1991, ♂, Turkey, Artvin, Kaçkar Dag, Yaylalar env., 1300–2000 m, 4.–7.VII.1997, V. SHCHUROV leg. Upperside.

Fig. 16: same as in fig. 13. Underside.

Fig. 17: same as in fig. 14. Underside.

Fig. 18: same as in fig. 15. Underside.

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# Colour plate X

SHCHUROV, V. I.: A new subspecies of *Plebeius (Plebejides) sephirus* (FRIVALDSZKY, 1835) from the Black Sea Coast of Russia (Lepidoptera, Lycaenidae). – *Atalanta* **29** (1/4): 131–139.

Fig. 1: *Plebeius (Plebejides) sephirus kubanensis* subsp. nov., holotype ♂, Russia, Krasnodar province, 10 km E of Anapa, Sukko env., Navagir Mt. Range, 250 m, 21.V.1997, V. SHCHUROV leg. Upperside.

Fig. 2: *Plebeius (Plebejides) sephirus kubanensis* subsp. nov., ♂ paratype, same data as holotype. The most intensive submarginal pattern. Upperside.

Fig. 3: *Plebeius sephirus semiturcmenisus* BALINT, 1991, ♂, Turkey, Artvin, Kaçkar Dag, Yaylalar env., 1300–2000 m, 4.–7.VII.1997, V. SHCHUROV leg. Upperside.

Fig. 4: Same as in fig. 1. Underside.

Fig. 5: Same as in fig. 2. Underside.

Fig. 6: Same as in fig. 3. Underside.

Fig. 7: *Plebeius (Plebejides) sephirus kubanensis* subsp. nov., ♀ paratype, same data as holotype. Upperside.

Fig. 8: *Plebeius (Plebejides) sephirus kubanensis* subsp. nov., ♀ paratype, same data as holotype. The most intensive blue dusting. Upperside.

Fig. 9: *Plebeius (Plebejides) nichollae akbesianus* (OBERTHÜR, 1904), ♀, Turkey, Niğde, Taurus, Aladaglar, Demirkazik Dag, 1400 m, 27.–30.VI.1997, V. SHCHUROV leg., Upperside.

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Fig. 14: *Plebeius (Plebejides) nichollae akbesianus* (OBERTHÜR, 1904), ♂, Turkey, Niğde, Taurus, Aladaglar, Demirkazik Dag, 1400 m, 27.–30.VI.1997, V. SHCHUROV leg., Upperside.

Fig. 15: *Plebeius sephirus semiturcmenisus* BALINT, 1991, ♂, Turkey, Artvin, Kaçkar Dag, Yaylalar env., 1300–2000 m, 4.–7.VII.1997, V. SHCHUROV leg. Upperside.

Fig. 16: Same as in fig. 13. Underside.

Fig. 17: Same as in fig. 14. Underside.

Fig. 18: Same as in fig. 15. Underside.

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Colour plate X

